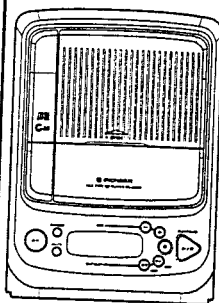


Service Manual

PIONEER®
The Art of Entertainment



ORDER NO.
RRV1438

FILE-TYPE CD PLAYER

PD-Q160F

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	PD-Q160F		
ZVY	○	AC power supplied from power transformer's secondary of other system component.	—

- This product is a system(s) component.

This product does not function properly when independent; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.

This product's instructions are contained within the instruction manual of the related system component(s).

The manual is packed with those component(s).

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1. SAFETY INFORMATION

(FOR EUROPEAN MODEL ONLY)

VARO!

AVATTAESSA JA SUOJALUKITUS
OHITETTAESSA OLET ALTTIINA
NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.
ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:

USYNLIG LASERSTRÅLING VED ÅBNING
NÅR SIKKERHEDSAFBRYDERE ER UDE AF
FUNKTION UNDGÅ UDSÆTTELSE FOR
STRÅLING.

VARNING!

OSYNLIG LASERSTRÅLNING NÅR DENNA
DEL ÄR ÖPPNAD OCH SPÄRREN
ÄR URKOPPLAD. BETRakta EJ STRÅLEN.



LASER
Kuva 1
Lasersäteilyn
varoituserkki

WARNING!

DEVICE INCLUDES LASER DIODE WHICH
EMITS INVISIBLE INFRARED RADIATION
WHICH IS DANGEROUS TO EYES. THERE IS
A WARNING SIGN ACCORDING TO PICTURE
1 INSIDE THE DEVICE CLOSE TO THE LASER
DIODE.



LASER
Picture 1
Warning sign for
laser radiation

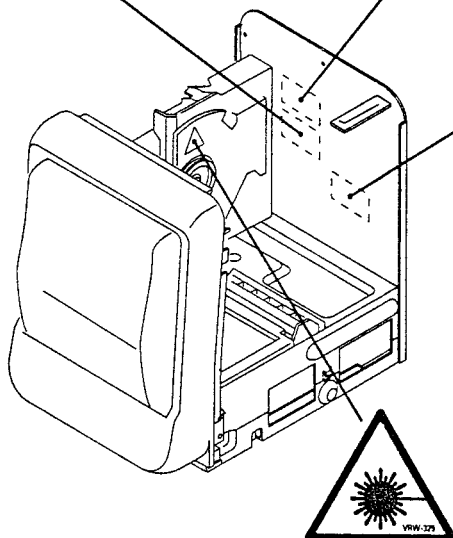
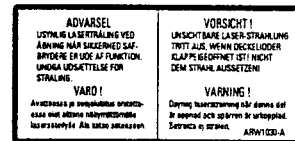
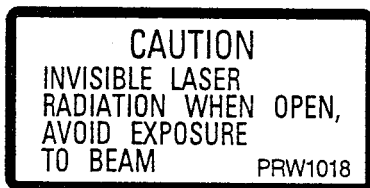
IMPORTANT

THIS PIONEER APPARATUS CONTAINS
LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS
SHOULD BE DONE BY A SPECIALLY
INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LABEL CHECK



Additional Laser Caution

1. Laser Interlock Mechanism

The position of the switch (S651 and S652 on the SW BOARD ASSY) for detecting loading state is detected by the system microprocessor, and the design prevents laser diode oscillation when the switch is not on CLMP terminal side (CLMP signal is OFF or high level). Thus, the interlock will no longer function if the switch is deliberately set to CLMP terminal side. (low level) The interlock also does not function in the test mode *. Laser diode oscillation will continue, if pin 1 of M51593FP (IC101) on the PRE-AMP BOARD ASSY mounted on the PICKUP ASSY is connected to GND, or pin 19 is connected to low level (ON), or else the terminals of Q101 are shorted to each other (fault condition).

2. When the cover is opened, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam.

* : Refer to page 22.

2. EXPLODED VIEWS, PACKING AND PARTS LIST

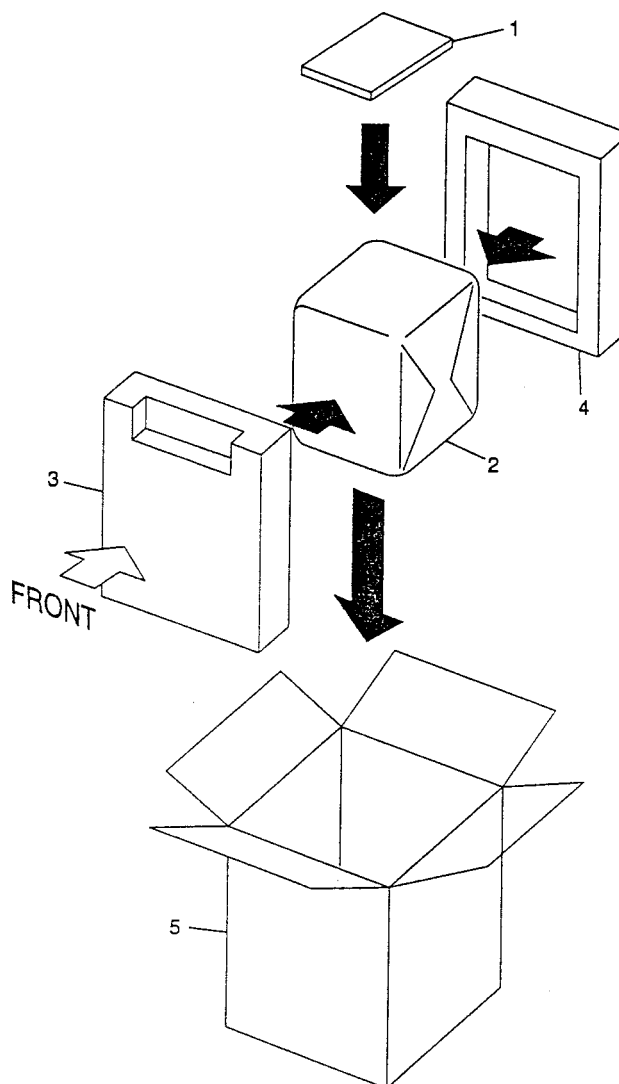
NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The \triangle mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

2.1 PACKING

Parts List

Mark	No.	Description	Parts No.
	1	CD case rack	AMR7066
	2	Mirror mat sheet (800×900×0.5)	Z23 - 020
	3	Pad F	AHA7078
	4	Pad R	AHA7079
	5	Packing case	AHD7277



PD-Q160F

2.2 EXTERIOR

Parts List

Mark	No.	Description	Parts No.
	1	CD ASSY	AWZ8015
	2	FRNT ASSY	AWZ8023
	3	Flexible cable 22P	ADD7013
	4	Flexible cable 25P	ADD7029
	5	Connecting wire 15P	ADE7008
	6	.....
	7	Door spring	ABH7065
	8	Hood spring	ABH7066
	9	Rubber sheet	AEB1111
NSP	10	PCB holder	AEC - 785
	11	Flexible guide	AMR7050
	12	Chassis	ANA7027
	13	Rear panel GM	ANC7358
	14	Sub chassis	AND7004
	15	Link	ANG7045
	16	.....
	17	Rack spring	ABH7057
	18	Guide shaft - 25	ALA7007
	19	Shaft holder	ANB7021
	20	Disc rack	ANW7069
	21	Rack base S	ANW7070
	22	Damper ASSY	AXA7018
	23	Screw	PBA1085
NSP	24	GM mechanism	AXA7026
	25	Knob GM	AAD7211
	26	.....
	27	Hood	AAK7179
	28	FL panel	AAK7181
	29	.....
	30	Door	AAK7178
	31	Sub panel	AAK7183
	32	Front panel GM	AMB7250
	33	Bonnet	ANE7082
	34	Screw	BPZ30P080FMC
	35	Screw	BBZ30P080FZK
	36	Screw	IBZ30P080FMC
	37	Rubber sheet	AEB7044
NSP	38	Card spacer	REC1156
	39	Disc rack panel	AAK7251
	40	Tension rod	ABH7105
	41	Caution label	ARW7013
NSP	42	PCB mold	AMR2115
	43	Screw	BBZ30P140FMC
NSP	44	Card spacer	AEC7053
NSP	45	Caution label	ARW1030
NSP	46	Caution label (F)	VRW - 328
	47	Caution label (G)	VRW - 329
NSP	48	Getter label	AAX7288
	49	Caution label	PRW1018

A

B

C

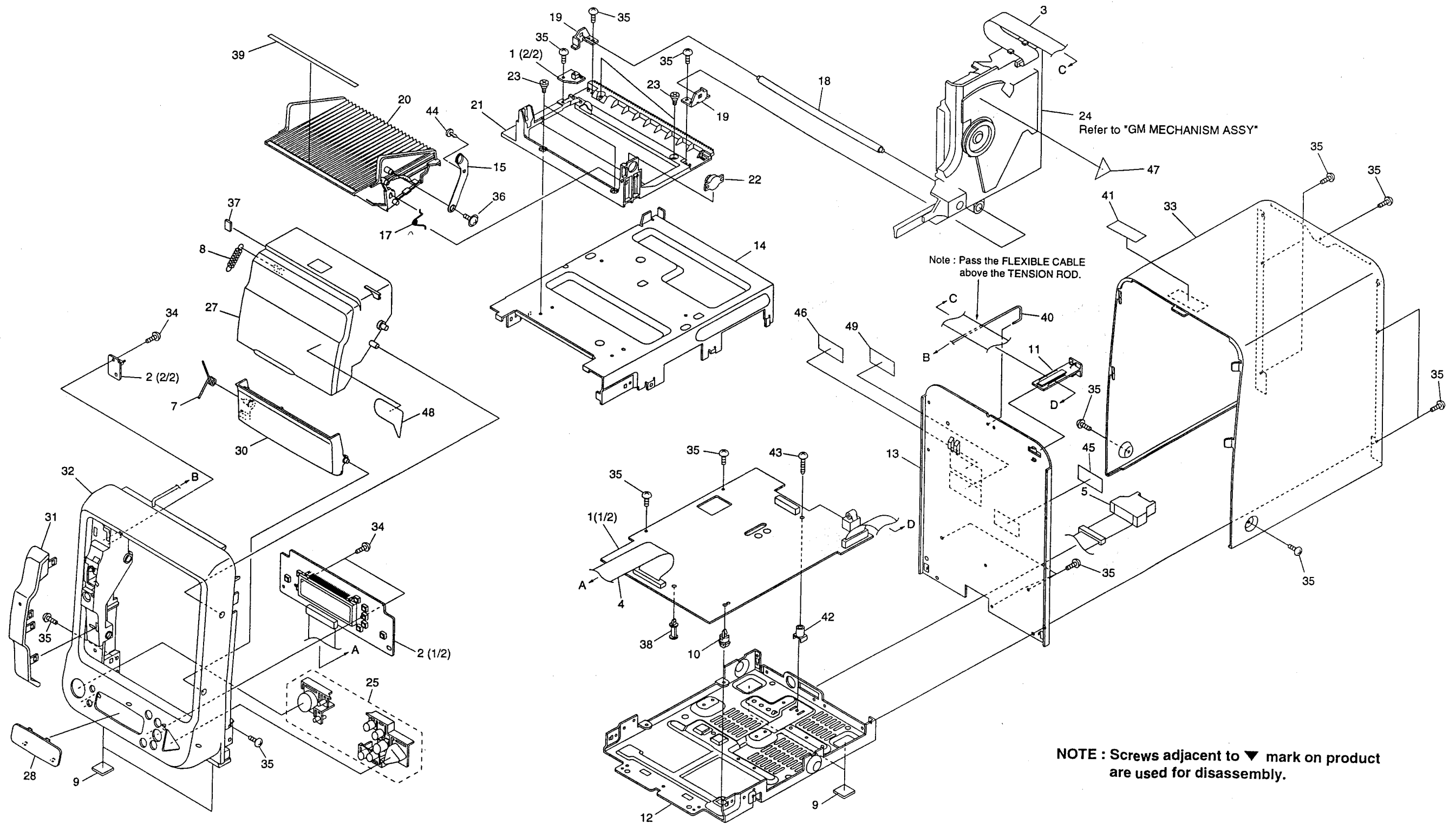
D

A

B

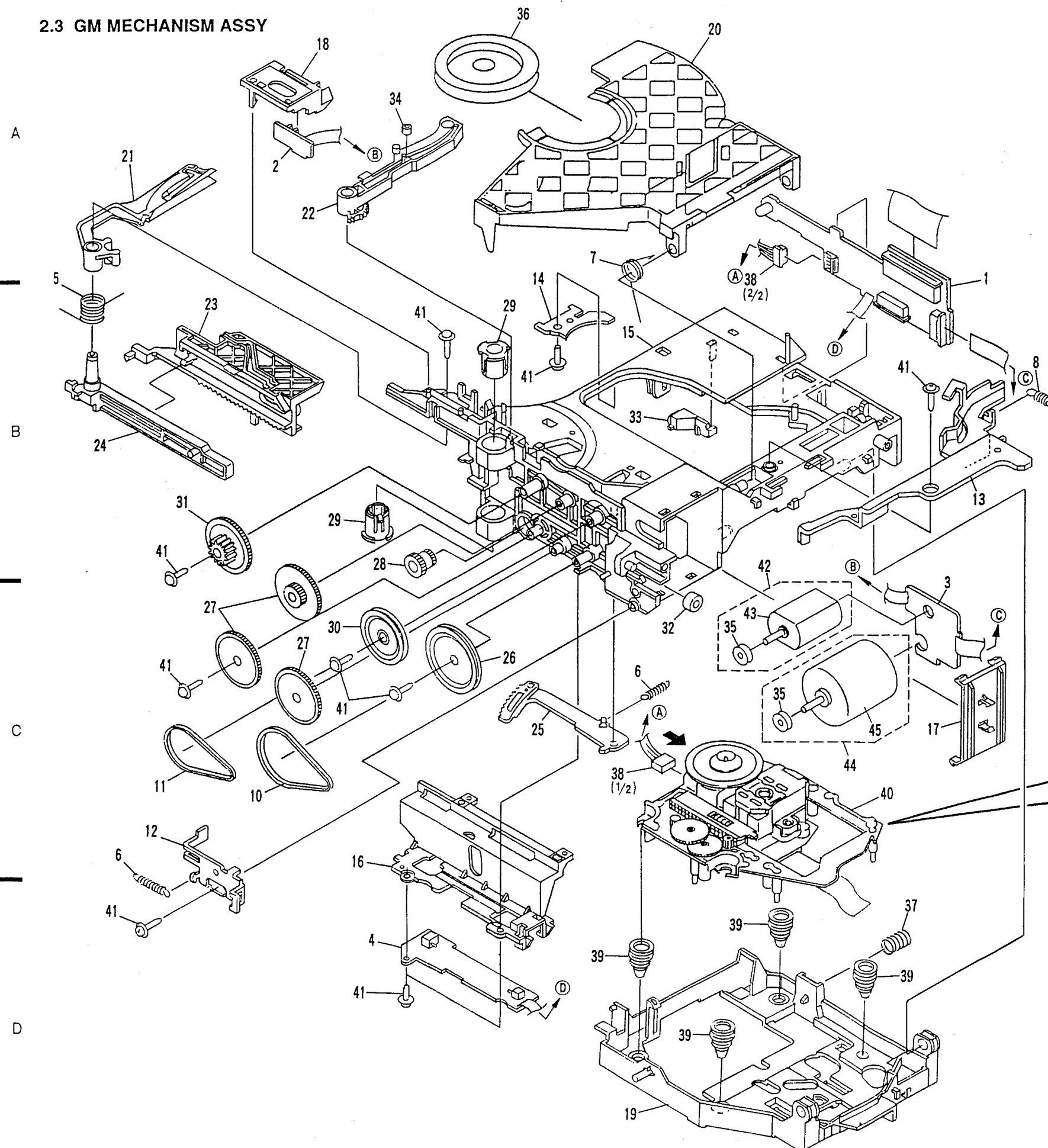
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D

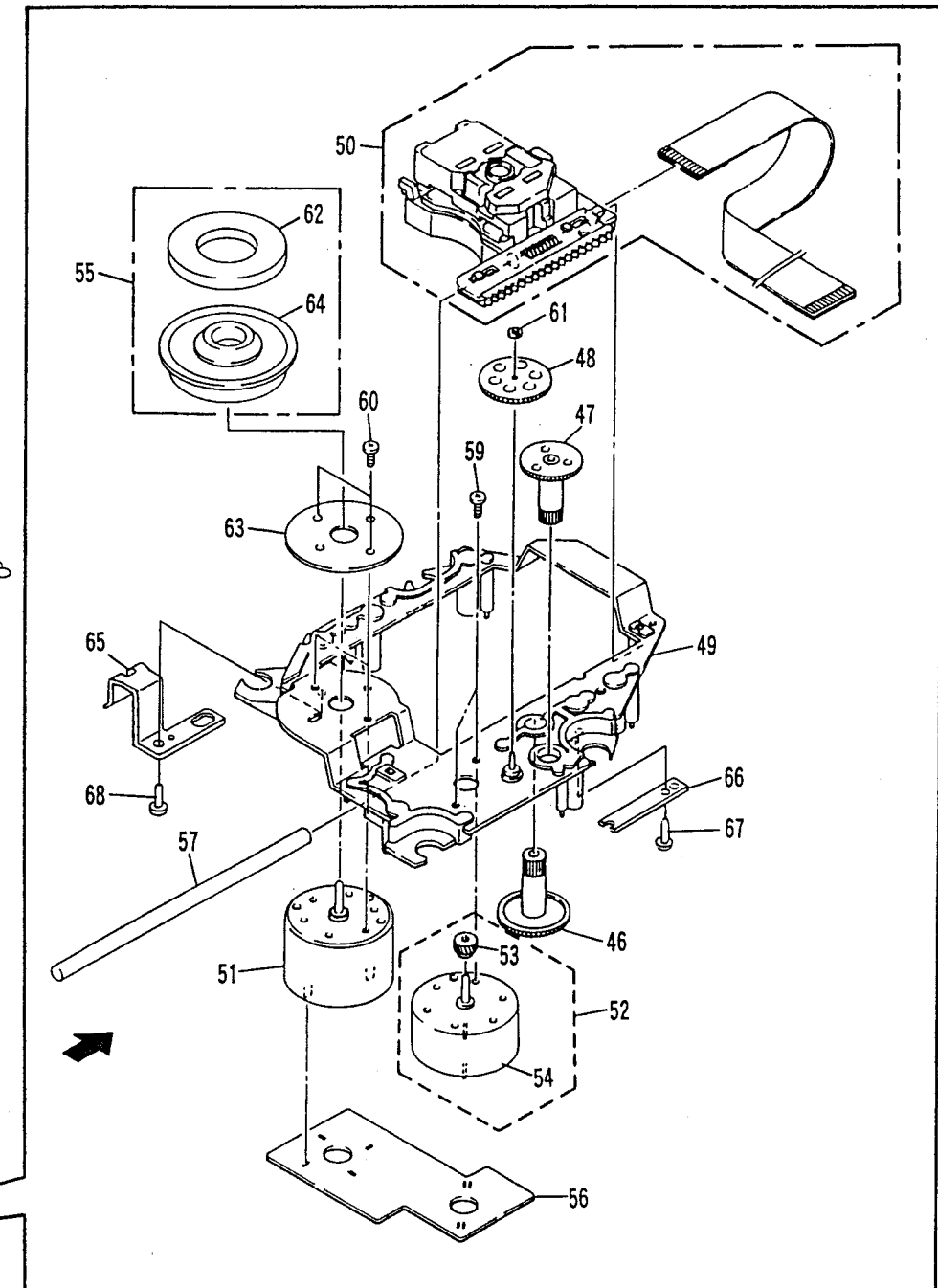


PD-Q160F

2.3 GM MECHANISM ASSY

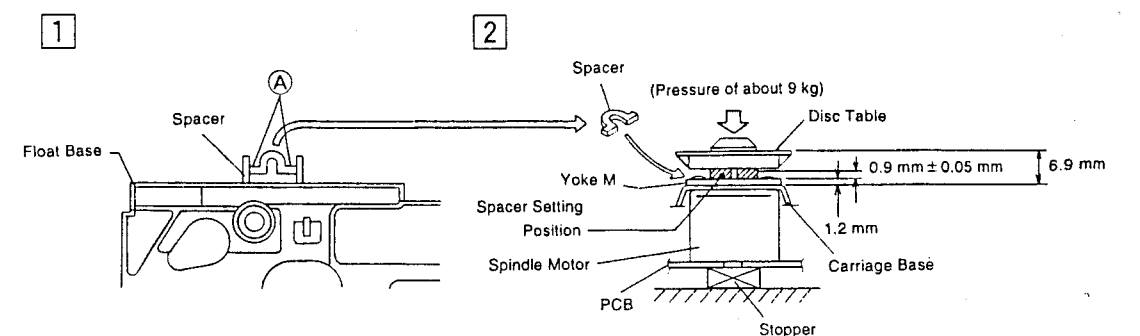


Servo Mechanism Assy GM



● How to install the disc table

- ① Use nipper or other tool to cut the two sections marked (A) figure ①. Then remove the spacer.
- ② While supporting the spindle motor shaft with the stopper, put spacer on top of the yoke M, and stick the disc table on top (takes about 9kg pressure). Take off the spacer.



Parts List

Mark	No.	Description	Parts No.	Mark	No.	Description	Parts No.
NSP	1	MECHA BOARD ASSY	AWZ7835		51	D.C. motor ASSY	PEA1235
NSP	2	SENSOR BOARD ASSY	AWZ7836		52	Carriage D.C. motor ASSY	PEA1246
NSP	3	MOTOR BOARD ASSY	AWZ7837		53	Pinion gear	PNW2055
NSP	4	SW BOARD ASSY	AWZ7838	NSP	54	Carriage D.C. motor/0.3W	PXM1027
	5	Arm A spring	ABH7050		55	Disc table ASSY	PEA1314
	6	Gear plate spring	ABH7051		56	MECHA. PCB ASSY	PWX1192
	7	Clamp spring	ABH7107		57	Guide bar	PLA1094
	8	Lock lever spring	ABH7106		58	.....
	9	.....			59	Screw	JFZ17P025FZK
	10	Loading belt	AEB7029		60	Screw	JFZ20P040FMC
	11	Belt	AEB7030		61	Washer	WT12D032D025
NSP	12	Lock angle	ANB7027		62	Clamp magnet	PMF1014
NSP	13	Lock lever	ANB7038		63	Yoke M	PNB1312
NSP	14	Servo stopper S	ANB7047	NSP	64	Disc table	PNW2410
	15	Loading base	ANW7051	NSP	65	Float angle	ANB7020
	16	Cam cover	ANW7052		66	Gear stopper	PNB1303
	17	Motor holder	ANW7053		67	Screw	BPZ20P060FMC
	18	Sensor holder	ANW7054		68	Screw	BPZ26P100FMC
	19	Froast base	ANW7080				
	20	Clamper holder	ANW7056				
	21	Arm (A)	ANW7057				
	22	Arm (B)	ANW7058				
	23	Drive plate	ANW7059				
	24	Arm plate	ANW7060				
	25	Gear plate	ANW7061				
	26	Gear pulley B	ANW7062				
	27	Gear A	ANW7063				
	28	Drive gear	ANW7064				
	29	Bearing	ANW7065				
	30	Gear pulley A	ANW7066				
	31	Select gear	ANW7067				
	32	Roller	ANW7068				
	33	LED lens	ANW7072				
	34	Roller B	ANW7075				
	35	Motor pulley	PNW1634				
	36	Clamper	PNW2569				
	37	Float spring	ABH7049				
	38	Connector ASSY (4P)	ADE7006				
	39	Float rubber	AEB7028				
NSP	40	Servo mechanism ASSY GM	AXA7028				
	41	Screw	IPZ20P080FMC				
	42	Motor ASSY	AEA7005				
NSP	43	Motor	PXM1002				
	44	Motor ASSY	AEA7006				
	45	Loading motor	VXM1034				
	46	Gear 1	PNW2052				
	47	Gear 2	PNW2053				
	48	Gear 3	PNW2054				
	49	Carriage base	PNW2445				
	50	PICKUP ASSY	AEA7004				

Use oil types for GM Mechanism ASSY

FROIL

HANARL


GYA1001

GEM1016

3. SCHEMATIC AND PCB CONNECTION DIAGRAMS

NOTE FOR SCHEMATIC DIAGRAMS

(Type 4A)

- When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".
- Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
- RESISTORS:**
Unit: k: k Ω , M: M Ω , or Ω unless otherwise noted.
Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
Tolerance: (F): $\pm 1\%$, (G): $\pm 2\%$, (K): $\pm 10\%$, (M): $\pm 20\%$ or $\pm 5\%$ unless otherwise noted.
- CAPACITORS:**
Unit: p: pF or μ F unless otherwise noted.
Ratings: capacitor (μ F)/ voltage (V) unless otherwise noted.
Rated voltage: 50V except for electrolytic capacitors.
- COILS:**
Unit: m: mH or μ H unless otherwise noted.
- VOLTAGE AND CURRENT:**
 or $-V$:
DC voltage (V) in PLAY mode unless otherwise noted.
 \leftrightarrow mA or $-mA$:
DC current in PLAY mode unless otherwise noted.
Value in () is DC current in STOP mode.
- OTHERS:**
 - \odot or \ominus : Adjusting point.
 - \rightarrow : Measurement point.
 - The Δ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
- SCH-□ ON THE SCHEMATIC DIAGRAM:**
 - SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
- SWITCHES** (Underline indicates switch position):
FRNT ASSY
 - S101: BEST
 - S102: \odot (DISC)
 - S103: $\blacktriangleright, \blacktriangleright$ (SKIP/SCAN)
 - S104: RANDOM
 - S105: \oplus (DISC)
 - S106: $\blacktriangleleft, \blacktriangleleft$ (SKIP/SCAN)
 - S107: HI-LITE
 - S108: \blacksquare (STOP)
 - S109: $\blacktriangleright/\blacksquare$ (PLAY/PAUSE)
 - S301: RACK

CD ASSY

S401: HOME

SW BOARD ASSY

S651: CLAMP


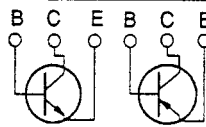

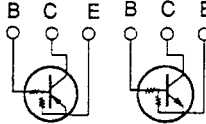

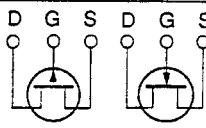

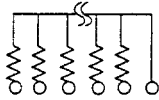

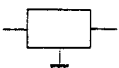
S652: EJECT

MECHA. PCB ASSY

S610: INSIDE

NOTE FOR PCB DIAGRAMS:

- Part numbers in PCB diagrams match those in the schematic diagrams.
- A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

A

A

• This diagram is viewed from the mounted parts side.

B

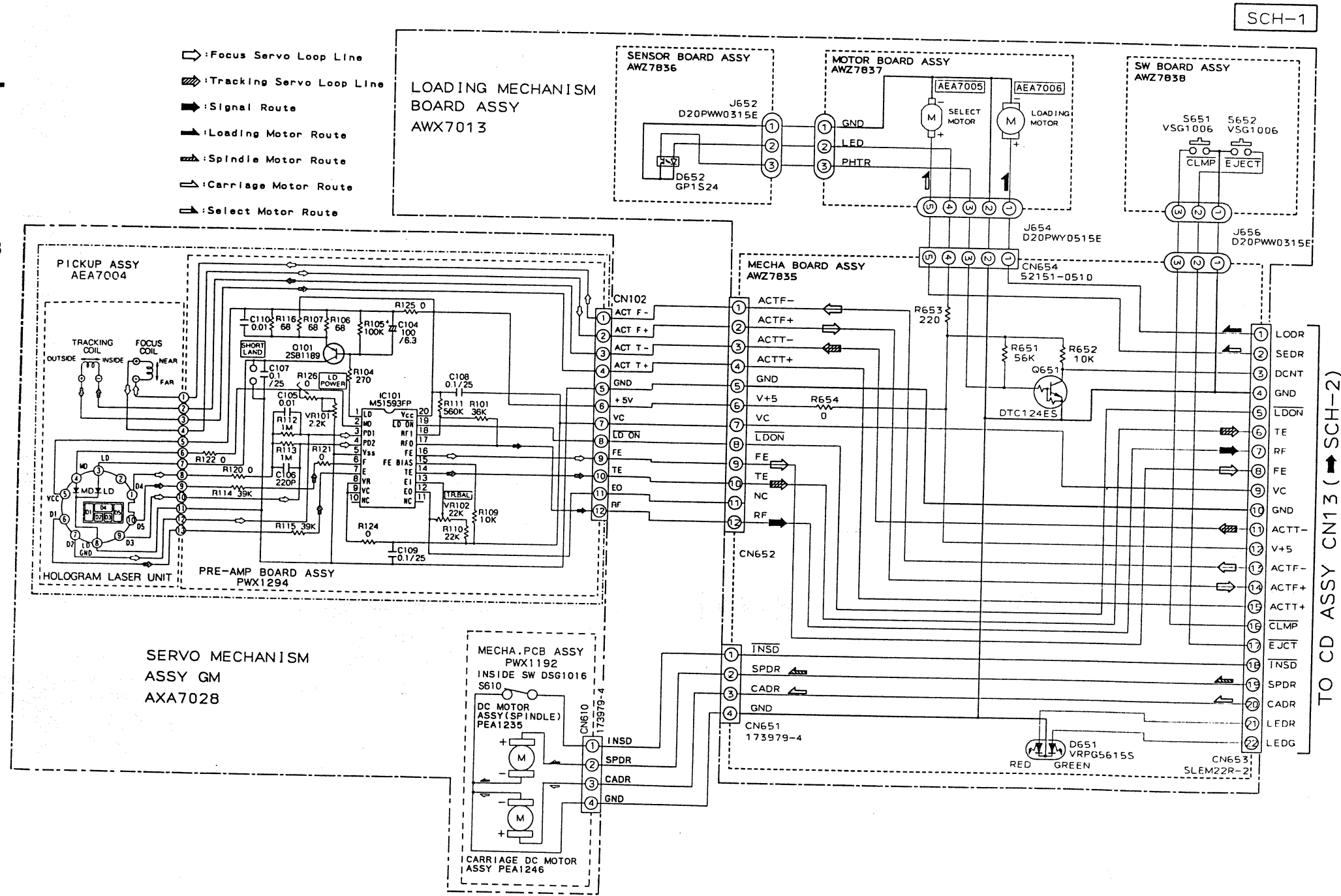
B

C

C

D

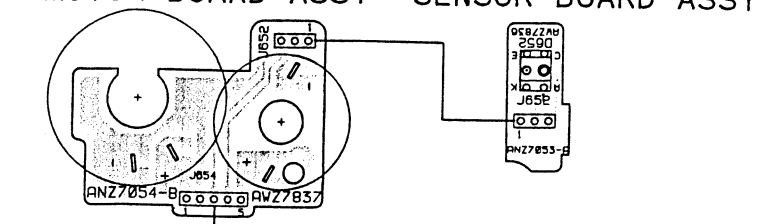
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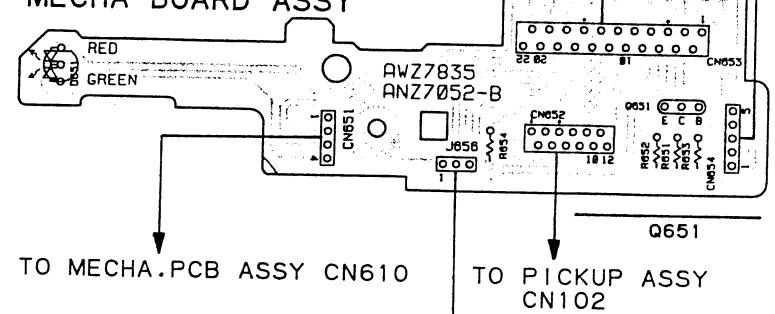
SCH-1

PCB-1

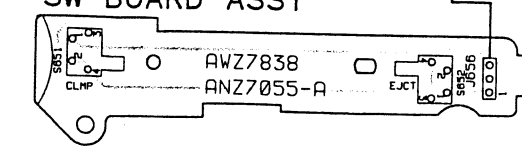
MOTOR BOARD ASSY SENSOR BOARD ASSY



MECHA BOARD ASSY



SW BOARD ASSY



ANP7085-B

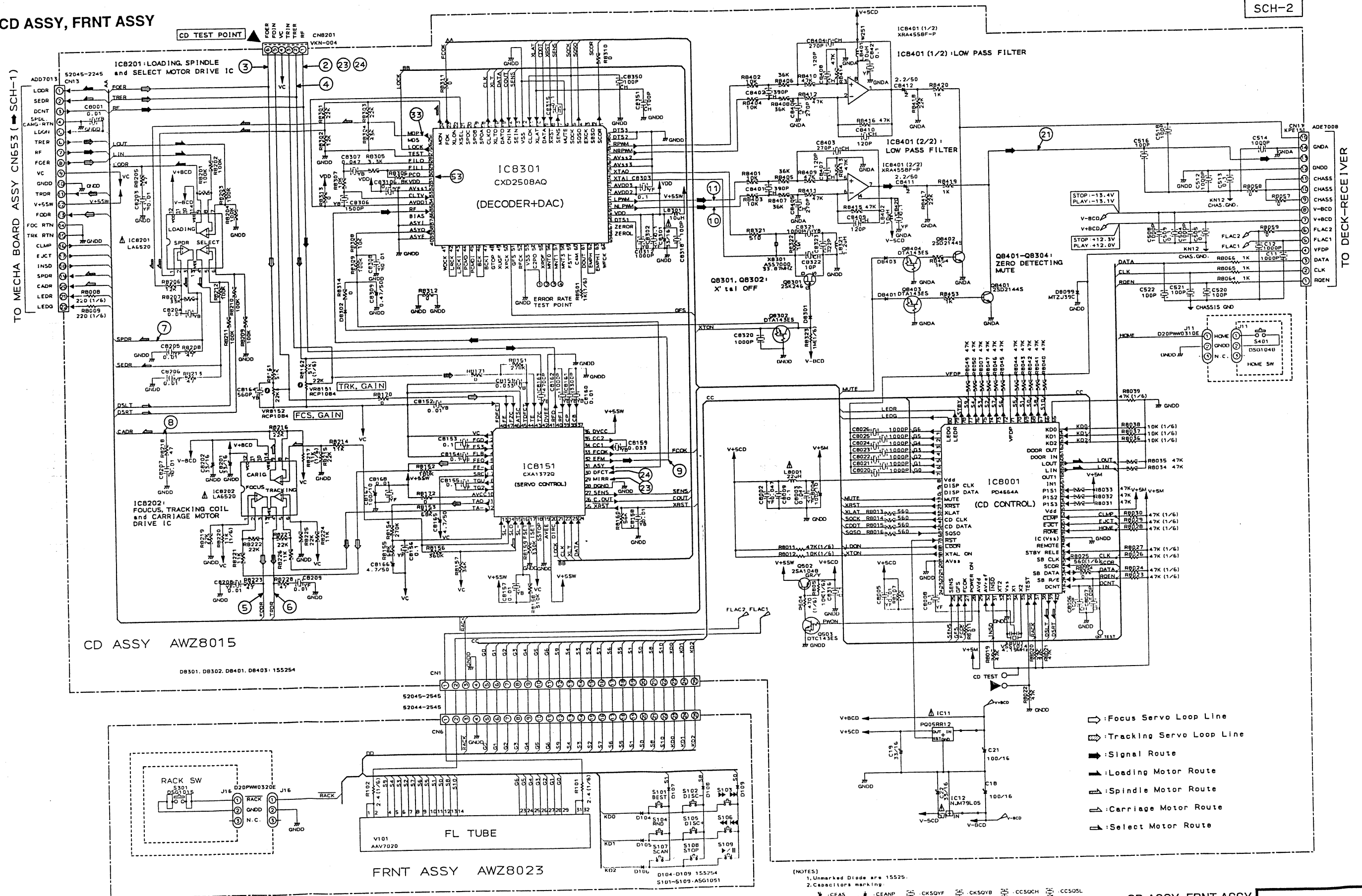
SCH-1

MECHA BOARD ASSY,
SENSOR BOARD ASSY,
MOTOR BOARD ASSY, SW BOARD ASSY,
PICKUP ASSY, MECHA. PCB ASSY

SCH-1

MECHA BOARD ASSY,
SENSOR BOARD ASSY,
MOTOR BOARD ASSY, SW BOARD ASSY,
PICKUP ASSY, MECHA. PCB ASSY

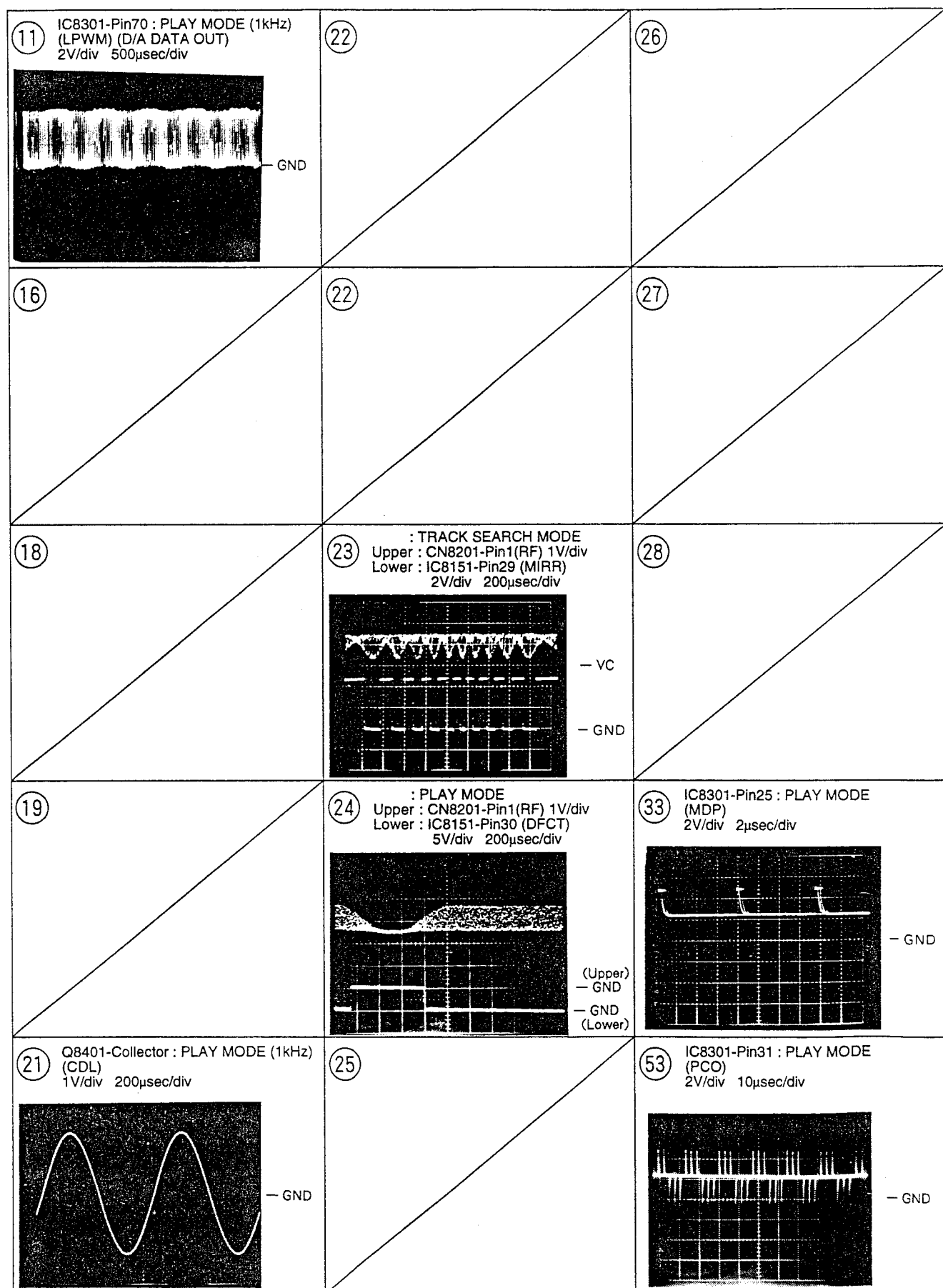
3.2 CD ASSY, FRNT ASSY



CD ASSY, FRNT ASSY [

SCH-2

SCH-2

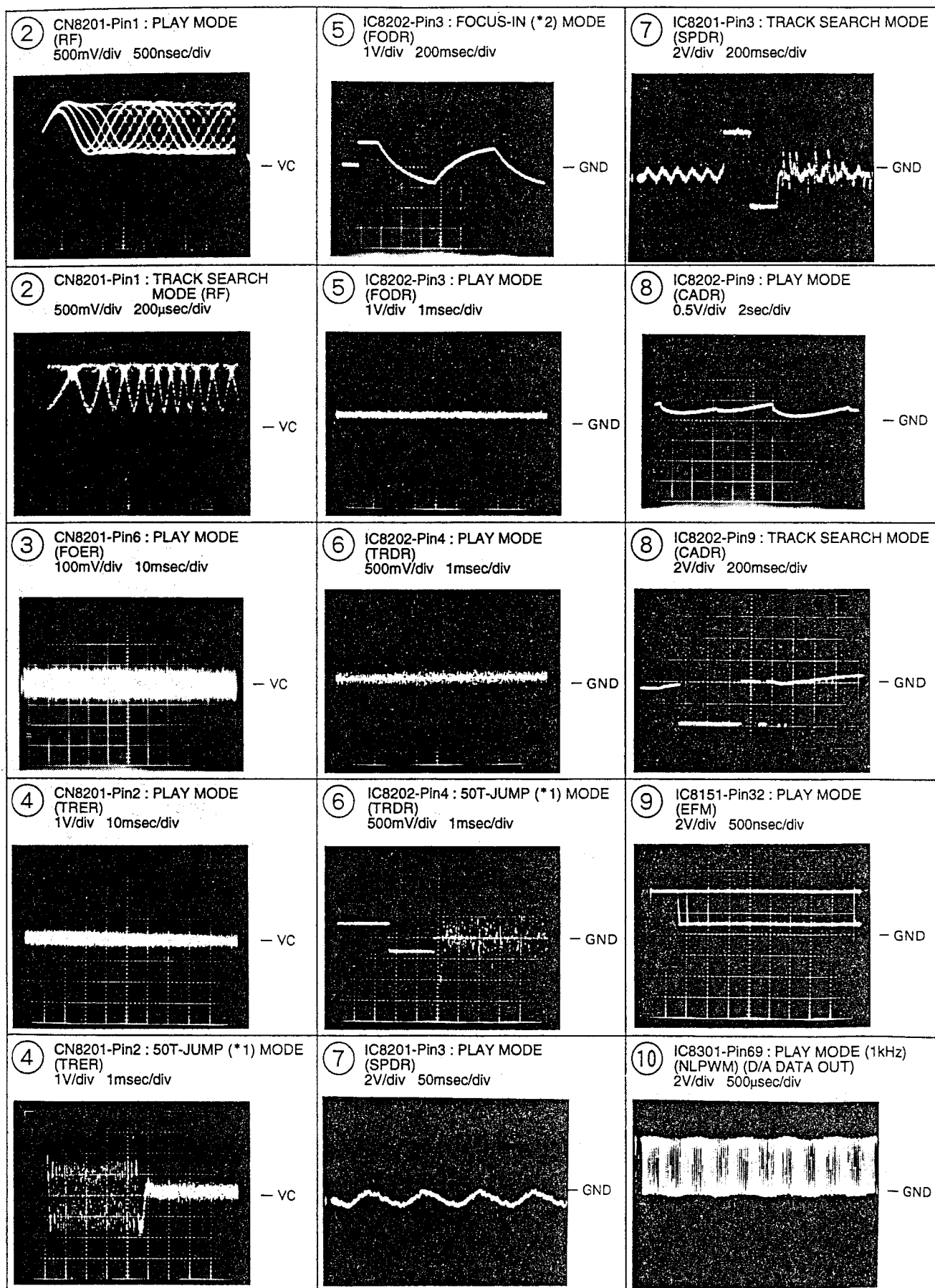


WAVEFORMS

Note : The encircled numbers denote measuring points in the schematic diagram.

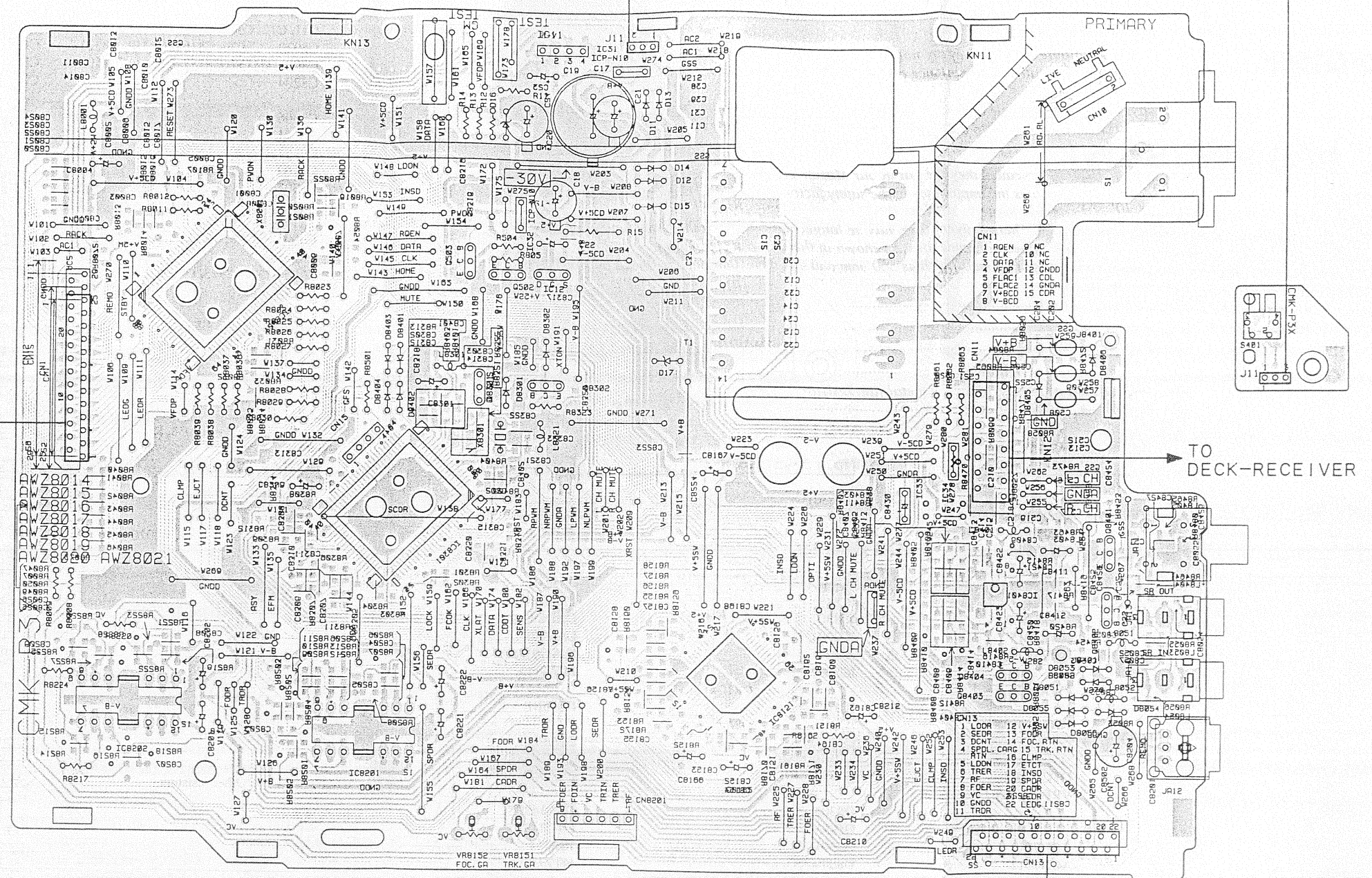
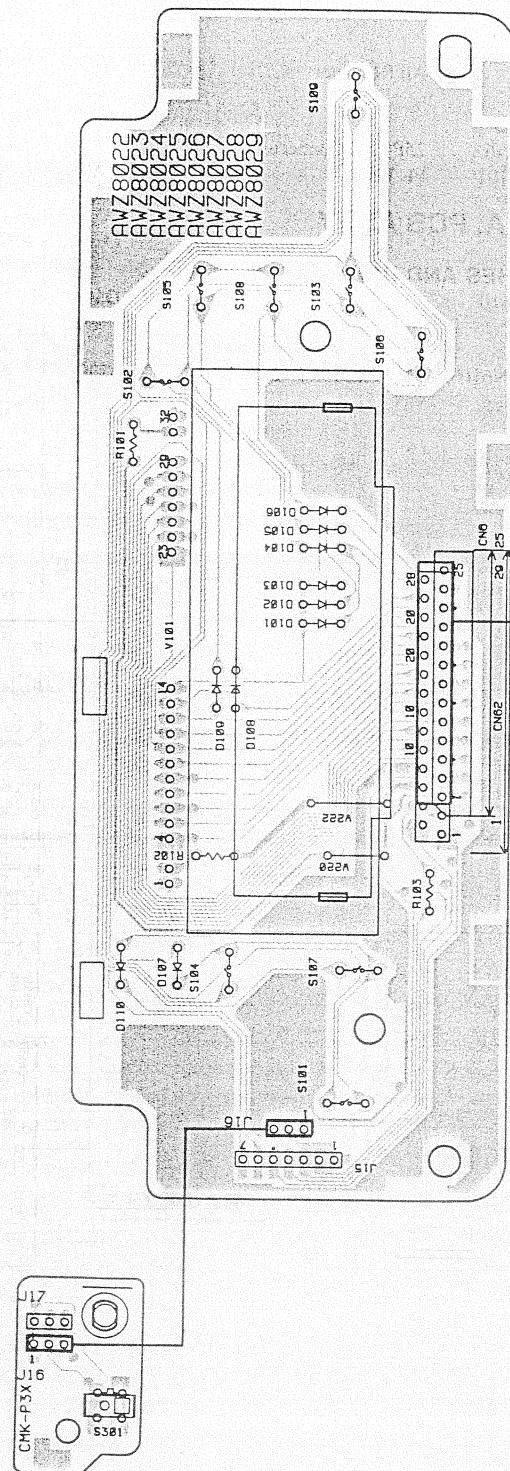
*1 50T-JUMP : After switching to the pause mode, press the manual search key.

*2 FOCUS-IN : Press the key without loading a disc.



FRNT ASSY

CD ASSY



VR8152 VR8151

IC8202 100801

IC8201 Q503 IC32 IC12 IC11
10E801 Q8301 Q502 Q8302 IC31

101801

TO MECHA BOARD ASSY CN653

IC34 Q8404 Q8401
IC33 Q8403 Q8402
104801

• This diagram is viewed from the mounted parts side.

• The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.

ANP7105-C

4. PCB PARTS LIST

- NOTES:
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
 - The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 - Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
 - When ordering resistors, first convert resistance values into code form as shown in the following examples.
- Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω → 56 × 10¹ → 561 RD1/8PM561J
47kΩ → 47 × 10³ → 473 RD1/4PS473J
0.5Ω → 0R5 RN2H0R5K
1Ω → 010 RS1P010K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62kΩ → 562 × 10¹ → 5621 RN1/4PC5621F






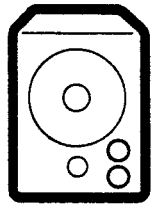
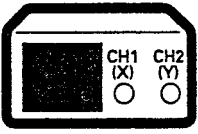
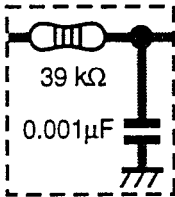
Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
LIST OF ASSEMBLIES			OTHERS		
NSP	LOADING MECHANISM BOARD ASSY	AWX7013	J656	Jumper wire 3P	D20PWW0315E
NSP	MECHA BOARD ASSY	AWZ7835	CD ASSY		
NSP	SENSOR BOARD ASSY	AWZ7836	SEMICONDUCTORS		
NSP	MOTOR BOARD ASSY	AWZ7837	IC8151	CXA1372Q	
NSP	SW BOARD ASSY	AWZ7838	IC8301	CXD2508AQ	
			Δ IC8201, IC8202	LA6520	
NSP	MOTHER ASSY	AWM7189	Δ IC12	NJM79L05A	
	CD ASSY	AWZ8015	IC8001	PD4664A	
	FRNT ASSY	AWZ8023			
MECHA. PCB ASSY			Δ IC11	PQ05RR12	
			IC8401	XRA4558F - P	
MECHA BOARD ASSY			Q502	2SA1048	
			Q8401, Q8402	2SD2144S	
			Q8301	2SK246	
SEMICONDUCTORS			Q8302, Q8403, Q8404	DTA143ES	
Q651		DTC124ES	Q503	DTC143ES	
D651		VRPG5615S	D8301, D8302, D8401, D8403	1SS254	
			D8099	MTZJ39C	
RESISTORS			COILS AND FILTERS		
R652 (10kΩ)	ACN7011		Δ L8301	LAU100J	
R651 (56kΩ)	ACN7012		L8401, L8402	LAU100J	
R653 (220Ω, 1/6W)	DCN1062		L8321	LAU1R2J	
R654 (0Ω)	DCN1065		Δ L8001	LAU220J	
OTHERS			SWITCHES AND RELAYS		
CN652	FFC Connector (12P)	12FMZ - AST	S401	DSG1048	
CN651	MT Connector 4P	173979 - 4	CAPACITORS		
CN653	22P FFC Connector	SLEM22R - 2	C8322	CCSQCH100D50	
SENSOR BOARD ASSY			C516, C518, C520 - C522	CCSQCH101J50	
			C8006, C8007, C8320, C8350, C8351	CCSQCH101J50	
SEMICONDUCTORS			C8407 - C8410	CCSQCH121J50	
D652		GP1S24	C8323	CCSQCH220J50	
OTHERS			C8403 - C8406	CCSQCH271J50	
J652	Jumper wire 3P	D20PWW0315E	C8401, C8402	CCSQCH391J50	
MOTOR BOARD ASSY			C8411, C8412	CEANP2R2M50	
			C8004, C8167	CEAS101M10	
OTHERS			C18, C21	CEAS101M16	
Loading motor			C19, C22, C8201, C8202, C8301	CEAS330M16	
SW BOARD ASSY			C8165, C8166	CEAS4R7M50	
SWITCHES AND RELAYS					
S651, S652		VSG1006			

Mark No.	Description	Parts No.	Mark No.	Description	Parts No.
RESISTORS			RESISTORS		
C8309	CEASR47M50			All Resistors	RD1/6PM□□□J
C11, C12, C504, C508, C512, C514	CKSQYB102K50		OTHERS		
C8020 - C8026, C8162, C8312, C8321	CKSQYB102K50		CN6	25P FFC Connector	52044 - 2545
C8001, C8152, C8157, C8158, C8160	CKSQYB103K50		V101	FL Tube	AAV7020
C8204	CKSQYB103K50		MECHA. PCB ASSY		
			SWITCHES AND RELAYS		
C8306	CKSQYB152K50		S610	DSG1016	
C8161	CKSQYB332K50		OTHERS		
C8151, C8159	CKSQYB333K50		CN610	MT Connector 4P	173979 - 4
C8163	CKSQYB472K50				
C8307	CKSQYB473K50				
			RESISTORS		
C8164	CKSQYB561K50		R8501	RD1/6PM102J	
C8005, C8168, C8203, C8205 - C8209	CKSQYF103Z50		R8012, R8036 - R8038, R805	RD1/6PM103J	
C8308	CKSQYF103Z50		R8323	RD1/6PM105J	
C505, C509, C513, C8008, C8009	CKSQYF104Z25		R8217, R8220, R8224	RD1/6PM113J	
C8315, C8316	CKSQYF104Z25		R8008, R8009	RD1/6PM221J	
C8153 - C8156, C8302, C8303, C8310	CKSQYF104Z50		R504	RD1/6PM471J	
C8420, C8421	CKSQYF104Z50		R8011, R8023, R8024, R8026 - R8030	RD1/6PM473J	
C8002, C8003	CKSQYF473Z50		R8039	RD1/6PM473J	
			R8162	RD1/6PM513J	
			R8025	RD1/6PM561J	
			VR8151, VR8152 (22kΩ, 0.1W)	RCP1084	
			Other resistors	RS1/10S□□□J	
			OTHERS		
			CN13	22P FFC Connector	52045 - 2245
			CN1	25P FFC Connector	52045 - 2545
			X8301	Crystal resonator (33.8688MHz)	ASS7000
			J11	Jumper wire 3P	D20PWW0310E
			CN11	Connector (15P)	KPE15
			CN8201	Jack	VKN - 004
			KN11, KN12	Earth metal fitting	VNF1084
			X8001	Ceramic resonator (4.19MHz)	VSS1014
			FRNT ASSY		
			SEMICONDUCTORS		
			D104 - D109	1SS254	
			SWITCHES AND RELAYS		
			S101 - S109	ASG1051	
			S301	DSG1015	






5. ADJUSTMENTS (調整方法)

5.1 PREPARATIONS (準備)

■ Jigs and Measuring Instruments (使用測定器/治工具類)

 <p>CD TEST DISC (YEDS-7)</p>	 <p>⊖ Precise screwdriver</p>	 <p>⊖ screwdriver (small)</p>	 <p>⊕ screwdriver (medium)</p>
 <p>⊕ screwdriver (large)</p>	 <p>Low-frequency oscillator</p>	 <p>Dual-trace oscilloscope (10:1 probe)</p>	 <p>Low pass filter (39 kΩ + 0.001 μF)</p>

■ Necessary Adjustment Points (調整に必要な項目)

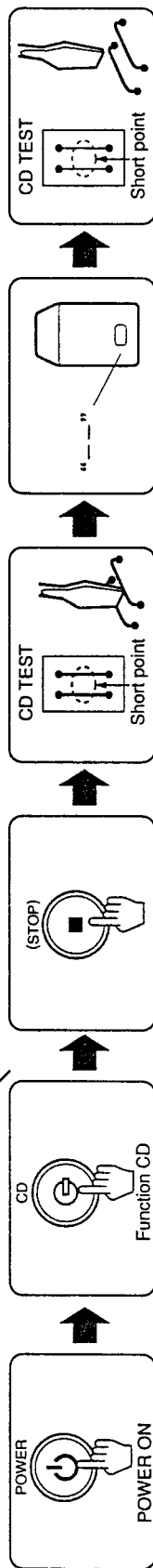
When (このような時)	Adjustment points
Exchange PICKUP (ピックアップを交換した時)	 1.2.3.4.5.6. → Page 23~25
Exchange CD ASSY (CD ASSYを交換した時)	 1.2.3.4.5.6. → Page 23~25
Exchange SERVO MECH ASSY (サーボメカ ASSYを交換した時)	 1.2.3.4.5.6. → Page 23~25
Exchange SPINDLE MOTOR (スピンドルモーターを交換した時)	  ADJ → Page 8

5.2 ADJUSTMENT (調整)

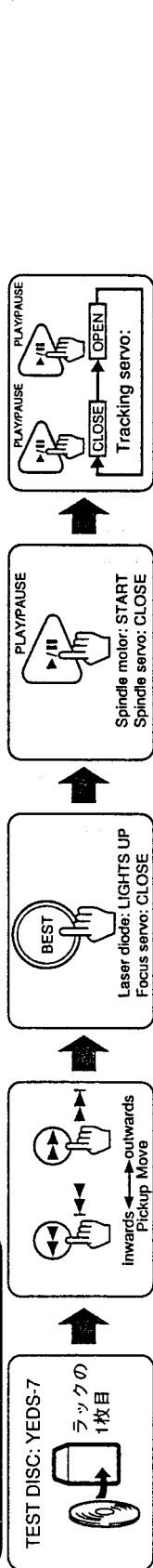
How to Start/Cancel Test Mode (テストモードの設定/解除)

TEST MODE: ON

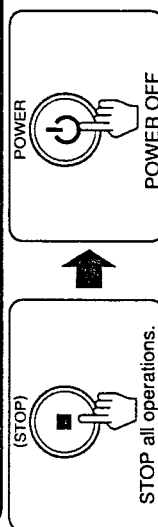
DECK-RECEIVER



TEST MODE: PLAY

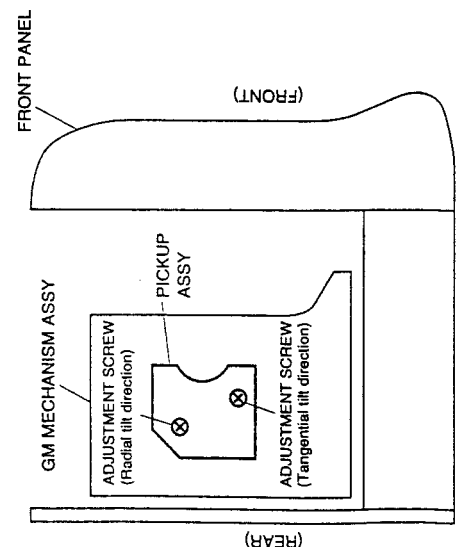


TEST MODE: STOP → CANCEL

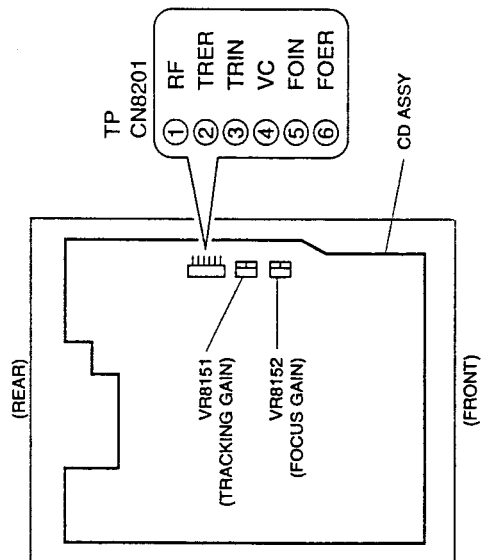


Adjustment Locations (テストポイントと調整用VRの位置)

SIDE VIEW



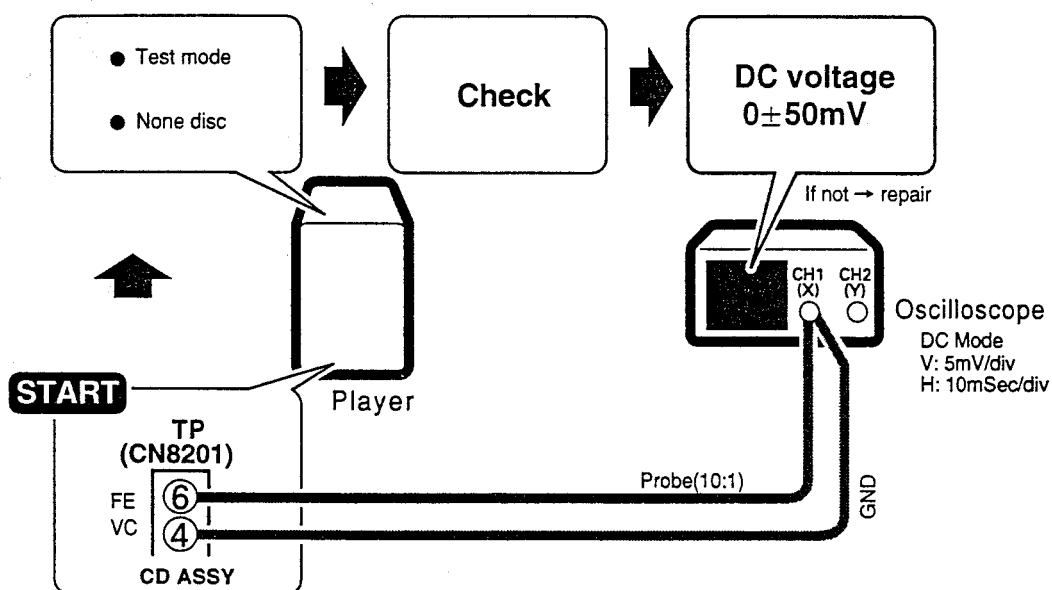
TOP VIEW



Check and Adjustment (確認、調整)

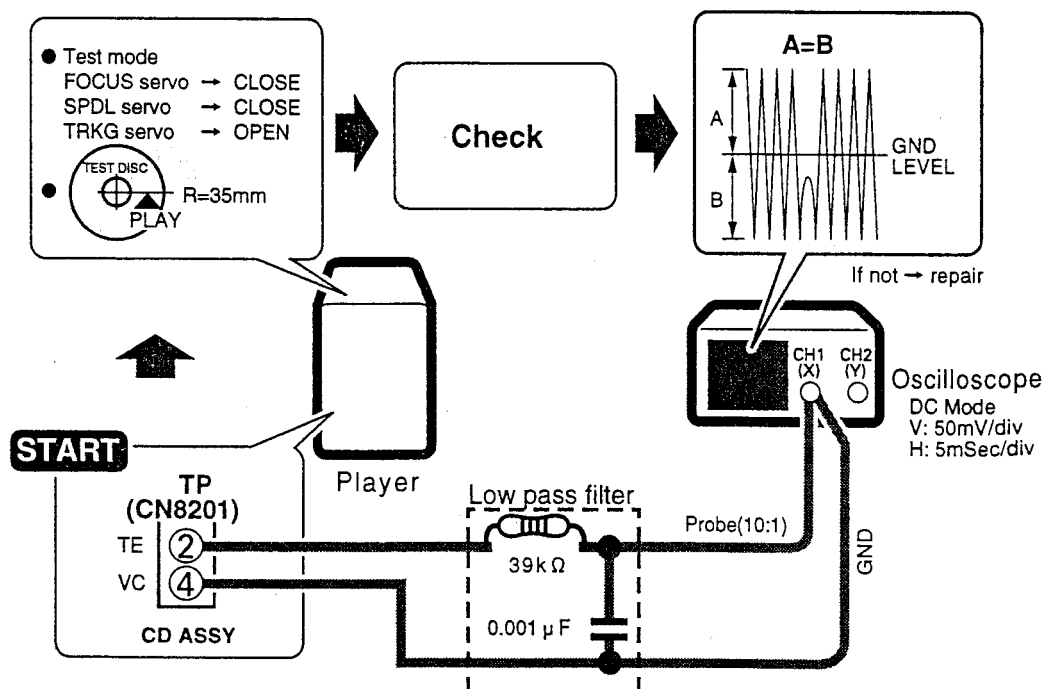
1. Focus Offset Check

(フォーカスオフセット確認)



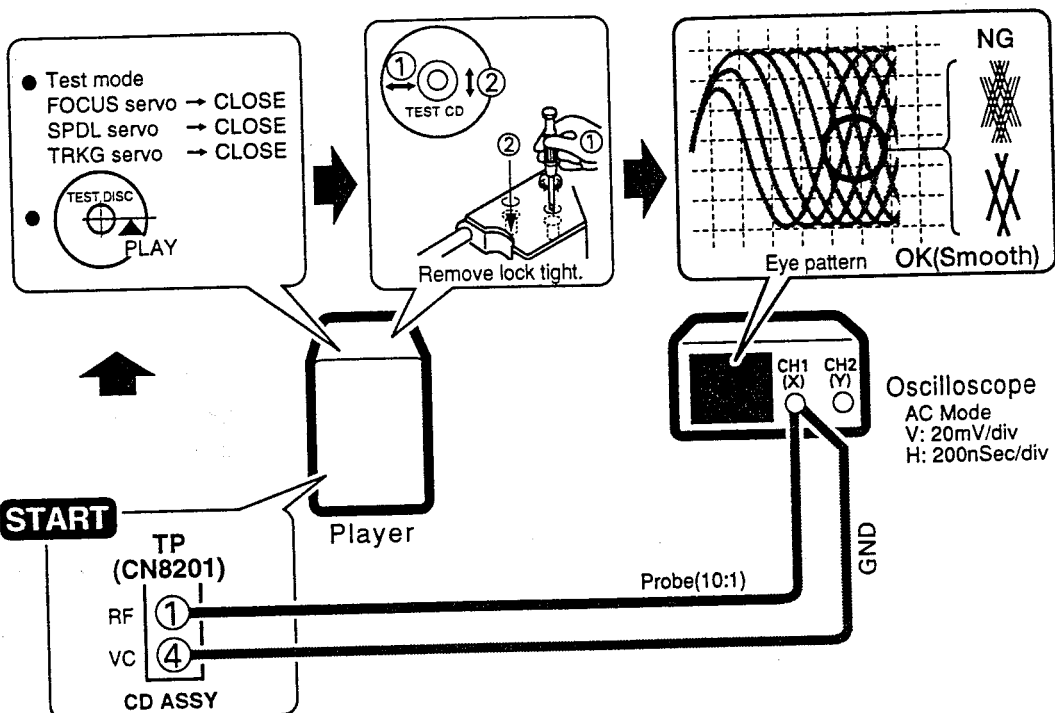
2. Tracking Error Balance Check

(トラッキングエラーバランス確認)



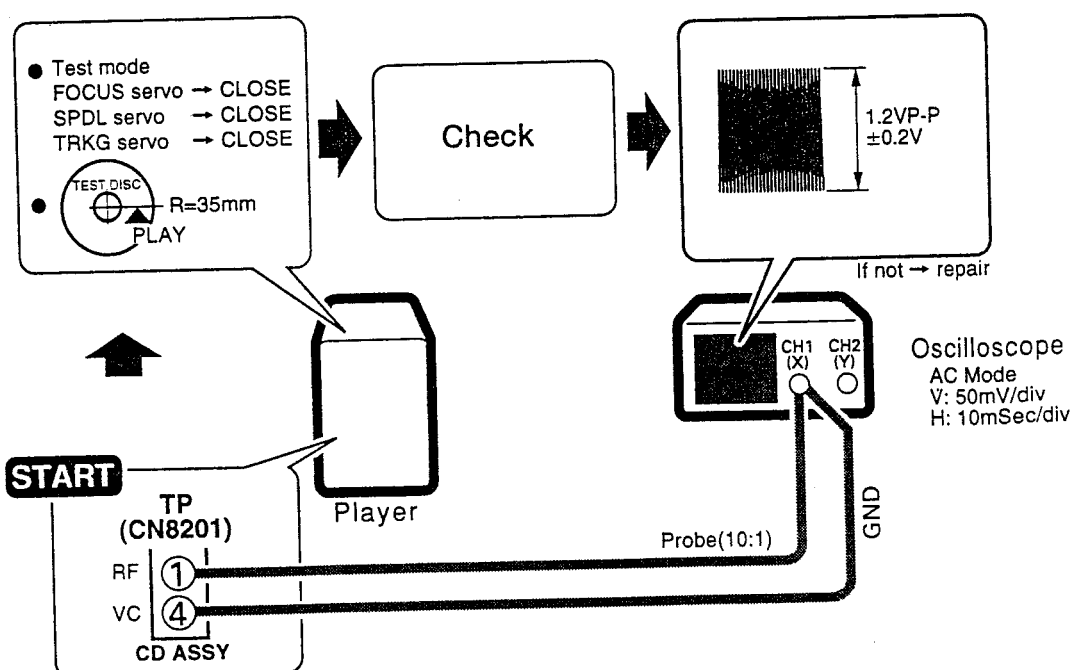
3. Pickup 1 Radial / 2 Tangential Direction Tilt Adjustment

(ピックアップ1ラジアル方向2タンジェンシャル方向の傾き調整)



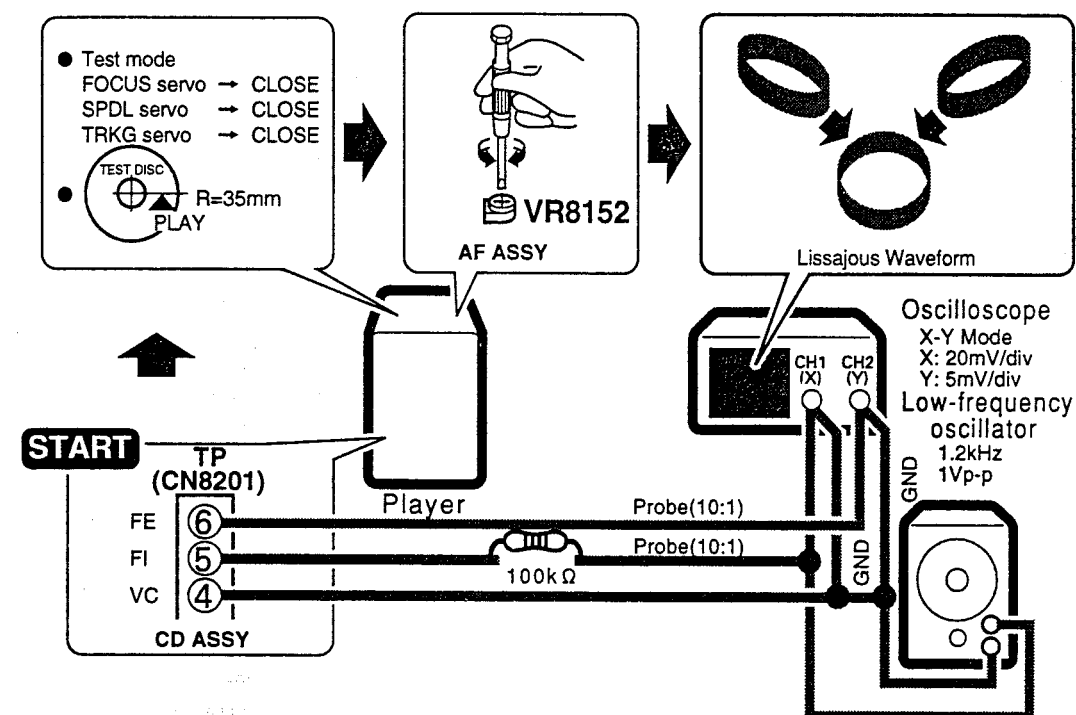
4. RF Level Check

(RFレベル確認)



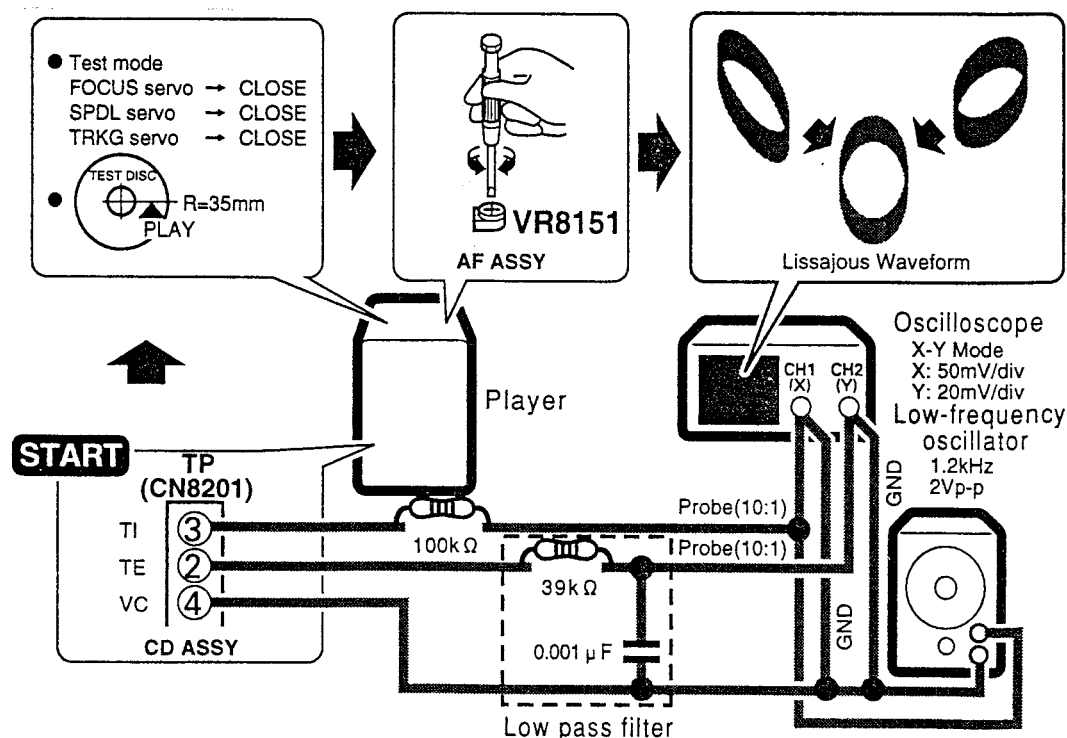
5. Focus Servo Loop Gain Adjustment

(フォーカスサーボループゲイン調整)



6. Tracking Servo Loop Gain Adjustment

(トラッキングサーボループゲイン調整)



6. IC INFORMATION

■ PD4664A (CD ASSY : IC8001)

● CD CONTROL IC

- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

● Pin Function

Pin No.	Mark	Pin Name	I/O	Function
1	P94/FIP6	GRID G6	O	FL driving DIGIT output. "L" : Output
2	P93/FIP5	GRID G5	O	
3	P92/FIP4	GRID G4	O	
4	P91/FIP3	GRID G3	O	
5	P90/FIP2	GRID G2	O	
6	P81/FIP1	GRID G1	O	
7	P80/FIP0	GRID G0	O	
8	Vdd	+5V	—	This pin is connected to +5V.
9	P27	DISP CLK	O	Not used.
10	P26	DISP DATA	O	Not used.
11	P25	MUTE	O	Muting output. "H" : MUTE
12	P24	XRST	O	Reset for LSI. "L" : Reset
13	P23	XLAT	O	LSI control data latch pulse. "L" : Latch
14	SCK1	CD CLK	O	LSI serial clock output.
15	SO1	CD DAT	O	LSI control data serial output.
16	SI1	SQSO	I	Subcode Q data serial input.
17	RESET	RST	I	CPU Reset. "L" : Reset
18	P74	LD ON	O	Laser diode ON/OFF output. "L" : ON, "H" : OFF
19	P73	XTAL ON/OFF	O	LSI oscillation control output. "L" : Oscillates, "H" : Stops
20	AVss	GND	—	This pin is connected to ground (GND).
21	P17	CD-G CE	O	Not used.
22	P16	CD-G MUTE	O	Not used.
23	P15	(CD-G RST)	O	Not used.
24	P14	(CD-G NTSC)	O	Not used.
25	P13	SENS	I	LSI operating state multi-mode input.
26	P12	GFS	I	Frame sync lock input. "H" : GFS OK
27	P11	FCOK	I	Focus OK input. "H" : FOCUS OK
28	P10	POWER ON	O	LSI power supply ON/OFF output.
29	AVdd	+5V	—	This pin is connected to +5V.
30	AVref	GND	—	This pin is connected to ground (GND).
31	P04	INSD	I	Slider INSIDE SW input. "L" : INSD SW ON
32	XT2	OPEN	—	Not used.
33	Vss	GND	—	This pin is connected to ground (GND).
34	X1	OSC.	—	Main system clock oscillation (4.19MHz).
35	X2			
36	P37	TEST	I	TEST mode judgment input. "H" : TEST mode
37	P36	DOOR CLOSE	I	RACK SW input. "L" : Closed
38	P35	DOOR OPEN	I	Not used.
39	P34	DSLT	O	Select motor output.
40	P33	DSRT	O	Select motor output.
41	P32	DCNT	I	Disc count pulse input. "H" : Returned to the home positions
42	P31	SB REO/ENA	I/O	System bus communication, request/enable.
43	P30	SB DATA	I/O	System bus communication, data input/output.
44	INTP3	SCOR	I	Subcode sync input. "L" : Subcode sync
45	INTP2	SBCLK	I	System bus communication clock input. "L" : System bus clock
46	INTP1	STBY	I	Not used ("L" : Microcomputer standby mode off input).
47	INTP0	RMDT	I	Remote control data input. "L" : Remote control data
48	IC(Vpp)	GND	—	This pin is connected to ground (GND).
49	P72	HOME	I	Disc selector home SW input. "L" : Mechanism home position
50	P71	EJECT	I	Loading out SW input. "L" : Ejected

PD4664A

Pin No.	Mark	Pin Name	I/O	Function
51	P70	CLMP	I	Clamped SW input. "L" : Clamped
52	Vdd	+5V	—	This pin is connected to +5V.
53	P127	PIS3	I	Not used.
54	P126	PIS2	I	
55	P125	PIS1	I	
56	P124	IN1	O	Not used.
57	P123	OUT1	O	Not used.
58	P122	LIN	O	Loading mechanism output.
59	P121	LOUT	O	Loading mechanism output.
60	P120	DOOR IN	O	Not used.
61	P117	DOOR OUT	O	Not used.
62	P116	KD2	I	Key data input. These pins also serve as input pins for model discrimination.
63	P115	KD1	I	
64	P114	KD0	I	
65	P113	(LED RACK)	O	Not used.
66	P112/FIP20	SEG S10	O	FL driving segment output. These pins also serve as SEG output pins for destination.
67	P111/FIP19	SEG S8	O	
68	P110/FIP18	SEG S0	O	
69	P107/FIP17	SEG S1	O	
70	P106/FIP16	SEG S5	O	
71	Vload		—	FLAC
72	P105/FIP15	SEG S6	O	FL driving segment output. These pins also serve as SEG output pins for destination.
73	P104/FIP14	SEG S7	O	
74	P103/FIP13	SEG S2	O	
75	P102/FIP12	SEG S3	O	
76	P101/FIP11	SEG S4	O	
77	P100/FIP10	SEG S9	O	
78	P97/FIP9	LED STBY	O	Standby indicator output. "H" : Lights
79	P96/FIP8	LED RED	O	Selector LED output. "H" : Lights
80	P95/FIP7	LED GR	O	Selector LED output. "H" : Lights

Selector Output and Operation

Pin No.	Pin name	Stop	(1→25) Rightward	(25→1) Leftward
39	DSL T	L	L	H
40	DSRT	L	H	L

Loading Mechanism Output

Pin No.	Pin Name	Stop	Clamp	Return
58	LIN	L	L	H
59	LOUT	L	H	L

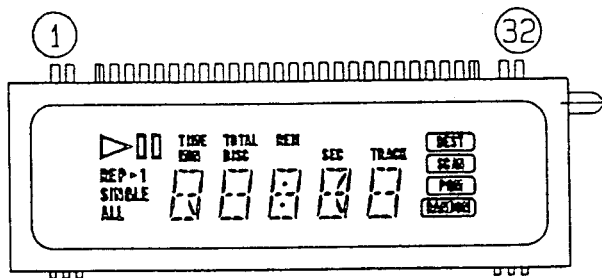
Note : The output contents of this IC vary depending on the selection of model discrimination pins (pins 62 to 64). For the function confirmation of PD4664A installed in other products, refer to the Service Manual of the corresponding products.

7. FL INFORMATION

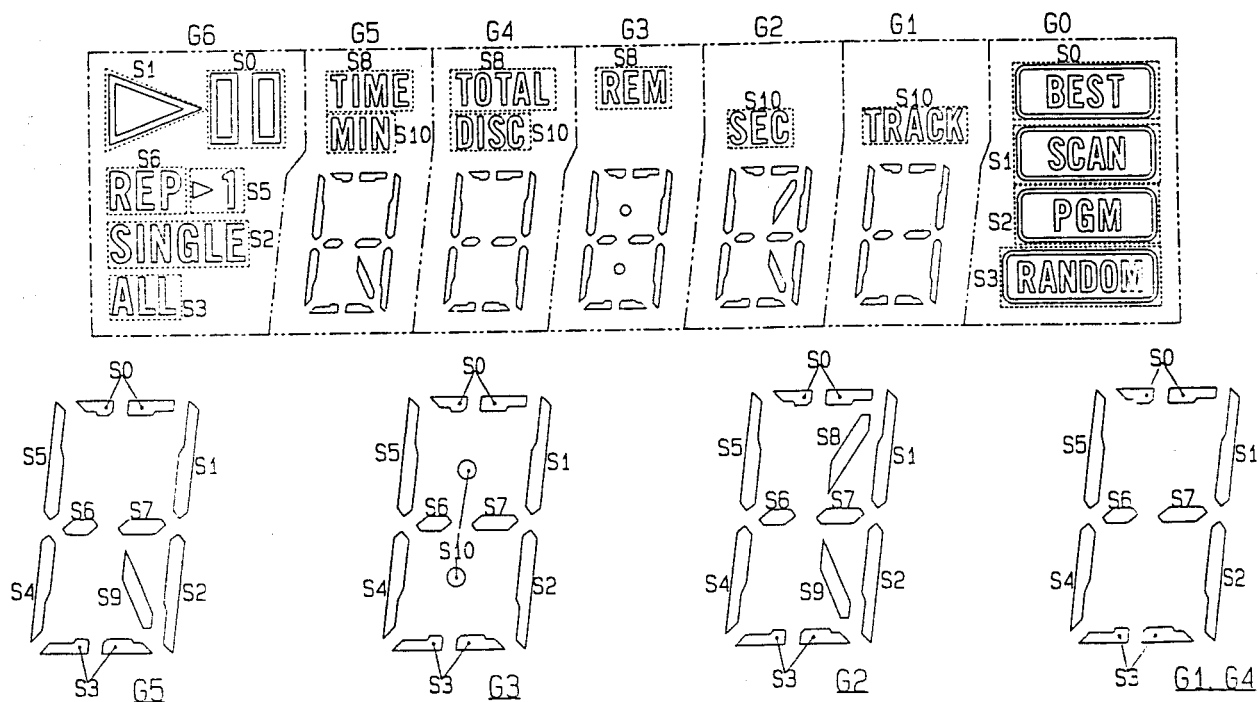
■ AAV7020 (FRNT ASSY : V101)

● FL TUBE

PIN LOCATION



ANODE GRID ASSIGNMENT



PIN ASSIGNMENT

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Assignment	F	F	NP	S9	S4	S3	S2	S7	S6	S5	S1	S0	S8	S10	NL	NL

Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Assignment	NL	NL	NL	NL	NL	NL	G6	G5	G4	G3	G2	G1	G0	NP	F	F

8. DISASSEMBLY

8.1 FRONT PANEL

- ① Remove the BONNET.
- ② Remove the TENSION ROD.
- ③ Open the HOOD.
- ④ Remove the LINK.
- ⑤ Remove the SCREWS, under both side panels, fixing the FRONT PANEL and SUB CHASSIS.
- ⑥ Remove the FRONT PANEL toward you while removing the HOOK on the side panel.

Caution :

- Be careful not to damage the FRONT PANEL by the HOOK on the side panel of the BONNET when installing the BONNET.
- Pull out the power plug from the wall outlet after confirming that the STANDBY indicator lights. (The GM MECHANISM is locked in the home position.)

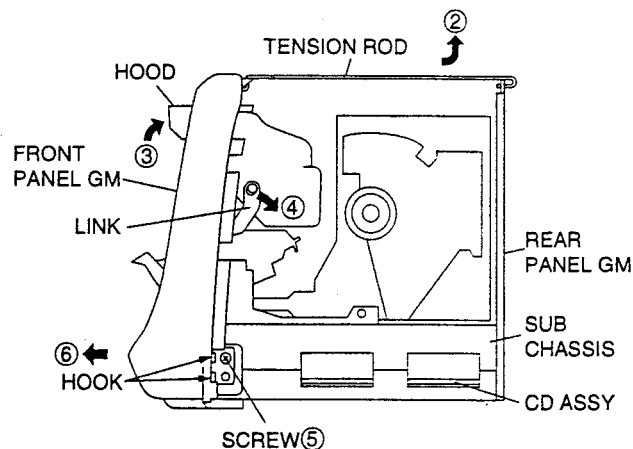


Fig. 1

8.2 CD LOADING MECHANISM ASSY

- ① Open the HOOD.
- ② Move the GM MECHANISM to the center position while pushing the LOCK LEVER and LOCK ANGLE in the direction indicated by the arrow (release the home lock).
- ③ Remove the SCREW of the SHAFT HOLDER.
- ④ Remove the GM MECHANISM together with GUIDE SHAFT-25.

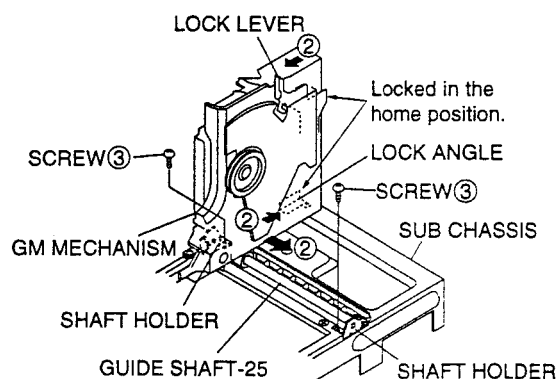


Fig. 2

8.3 BOARD DIAGNOSIS

- ① Remove the FRONT PANEL.
- ② Disconnect a FLEXIBLE CABLE 22P from the FLEXIBLE GUIDE.
- ③ Remove the two SCREWS (SUB CHASSIS fixing SCREWS) on the REAR PANEL.
- ④ Remove the GM MECHANISM together with the SUB CHASSIS, rotate the GM MECHANISM reversely in front and in the rear, and put it on the left of the product.

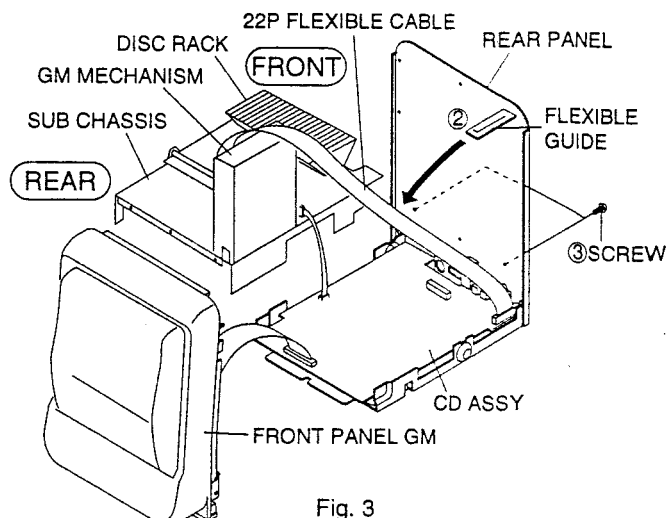
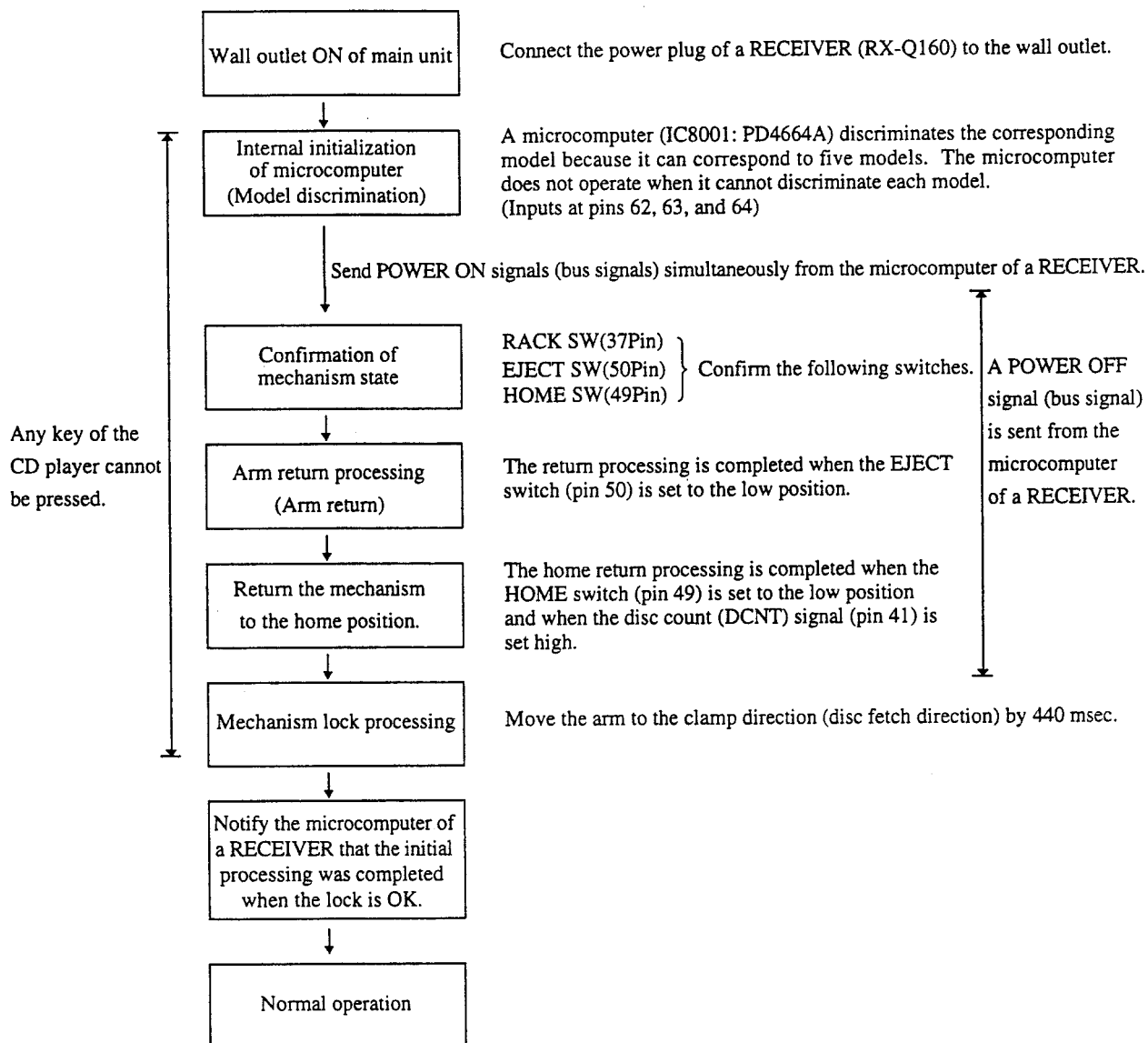


Fig. 3

9. OPERATIONAL DESCRIPTION

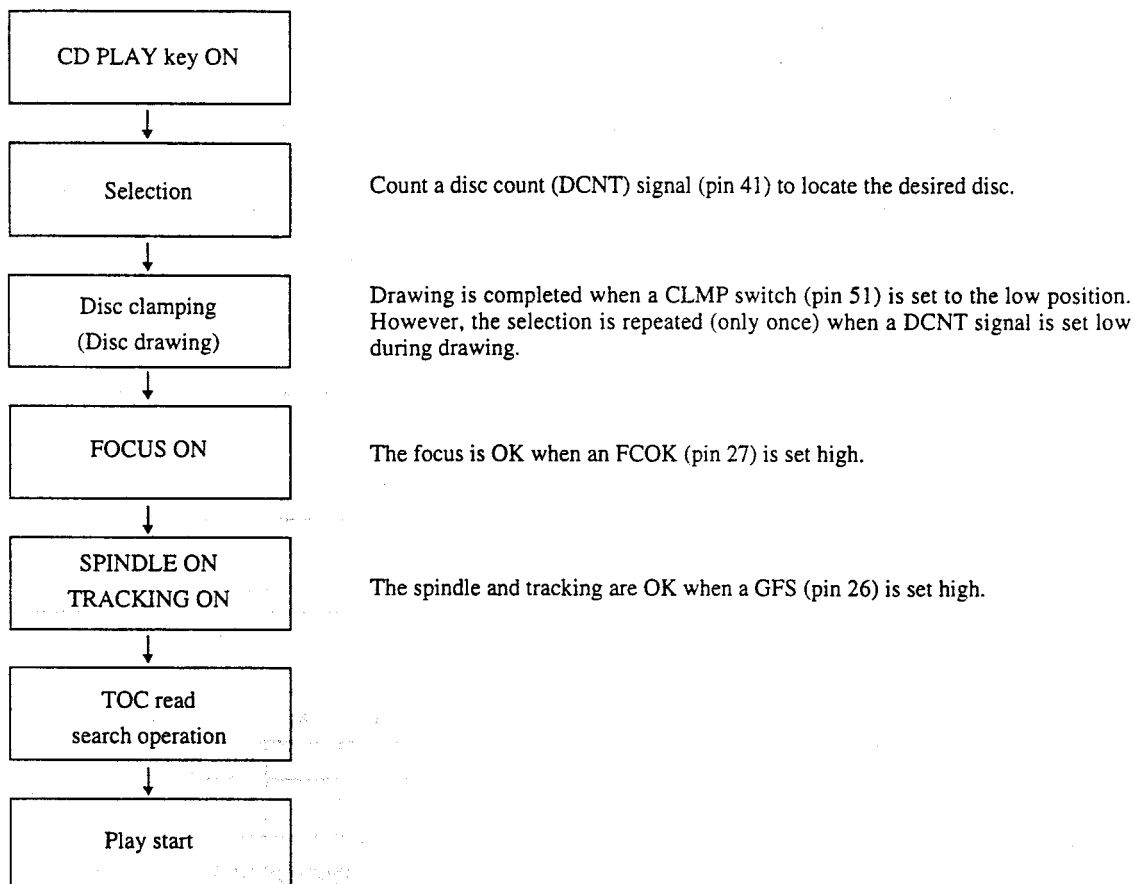
9.1 SETUP OPERATION FROM WHEN POWER IS TURNED ON

- If the unit is NG during each operation, the operation is performed again. If the operation is not completed at that time, the unit stops as NG. When the door is opened, the standby state is entered until the door is closed.



9.2 OPERATION IN PLAY MODE

- The operation from when the function switch is set to the CD position and when the mechanism is put in the home position (standby state) is described below.



10. NEW FUNCTIONS

10.1 BEST COLLECTION MEMORY

<Operation>

The tunes (a maximum of 25 tunes) during play are memorized when the **BEST** button is pressed in the PLAY mode.

The memorized tunes are played back in the order of memory when the **BEST** button is pressed in the stop mode.

<The contents of memory are maintained even if the standby mode is entered.>

10.2 PREVIOUS DISC SCAN

<Operation>

The number of a disc (a maximum of 25 tunes) that is usually played back is automatically memorized in time sequence. (The contents of old memory are sequentially cleared when 25 tunes are exceeded.)

(Example: Memory method)

Memory order (= Scan playback order)	1	2	3	4	.....	24	25
disc No.	22	8	9	15	.....	4	1

When the above state is memorized and disc 5 is played back.

Memory order (= Scan playback order)	1	2	3	4	.....	25
disc No.	5	22	8	9	.....	4

"1" is cleared.

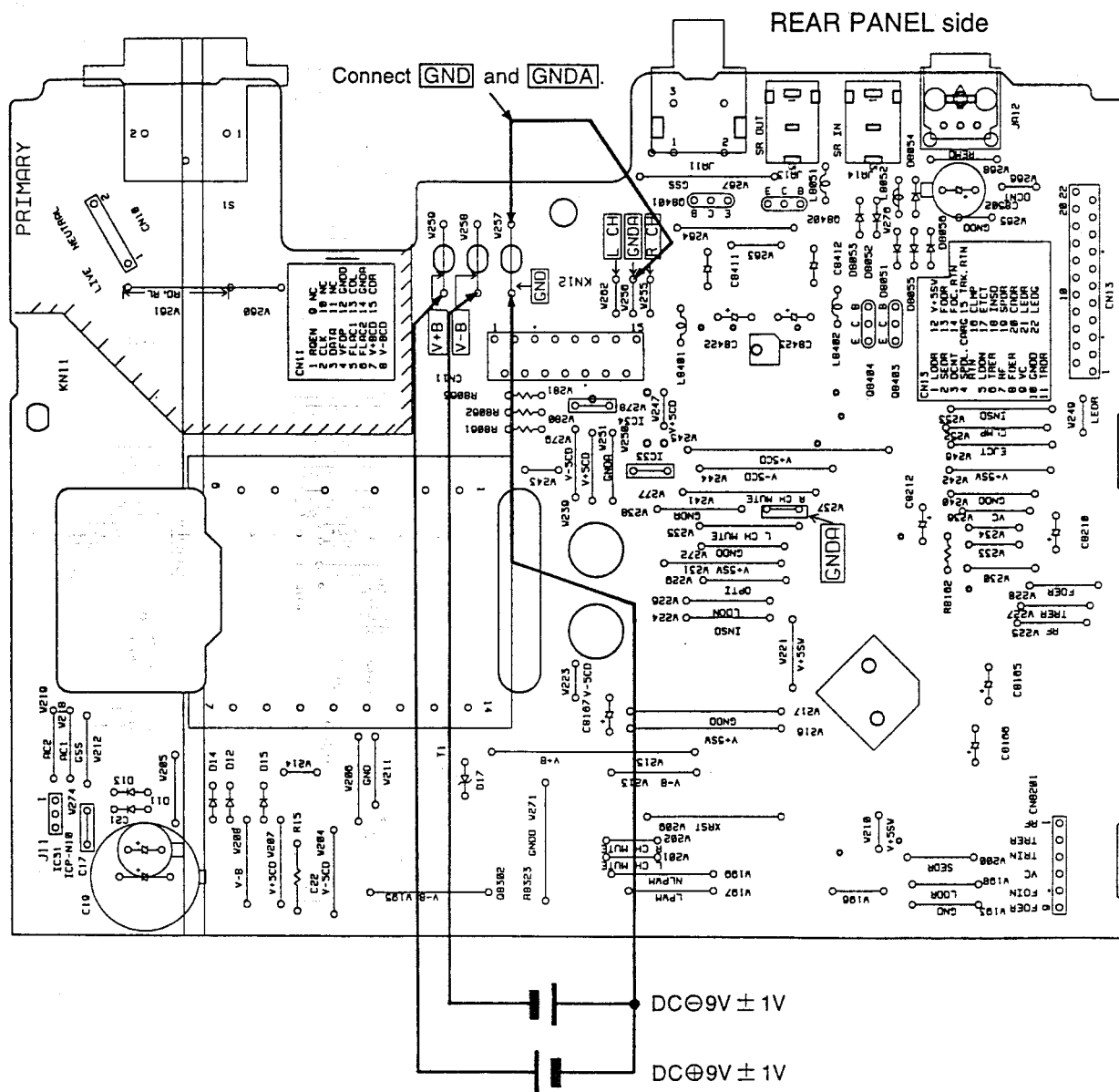
The contents of memory are shifted, and the contents of old memory are sequentially cleared when 25 tunes are exceeded.

Highlight scan operation is performed in the order of newly memorized tune when the **HI-LITE** button is pressed in the stop mode. When the PLAY button is pressed in the scan state, the scan operation stops and the disc is played back.

<The contents of memory are maintained even if the standby mode is entered.>

11. OPERATION OF SINGLE CD PLAYER

The CD player can independently operate by supplying a DC power to the power circuit in the CD assy from the outside.



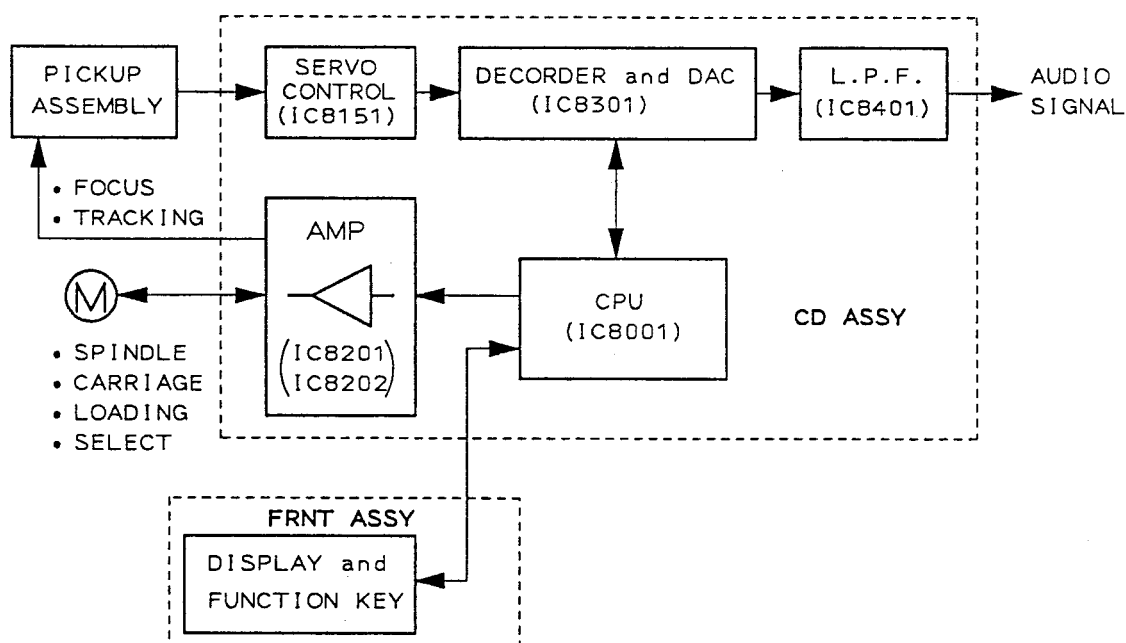
Connection Diagram of External Power Supply

CAUTION

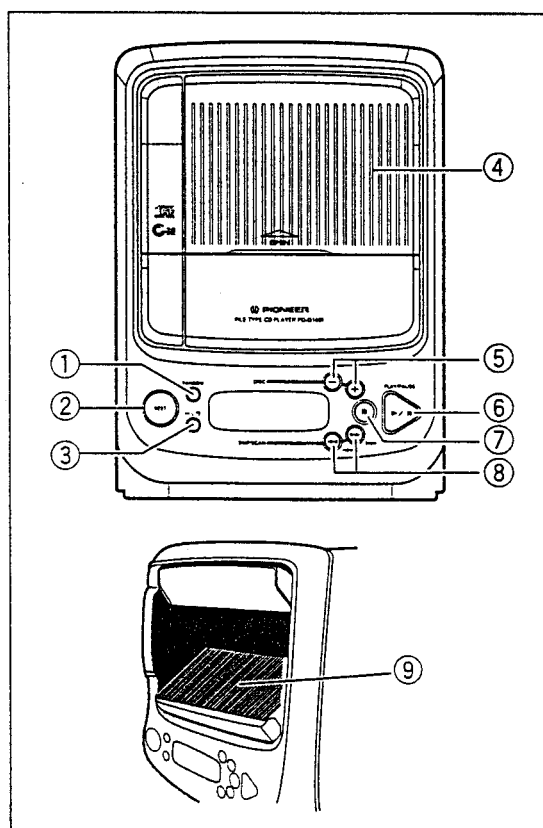
A fluorescent lamp does not light because no power is supplied to the fluorescent lamp.

Use a **REGULATED DC POWER SUPPLY** with a current capacity of more than 1A as the external power to be connected.

12. BLOCK DIAGRAM



13. PANEL FACILITIES AND SPECIFICATIONS



PANEL FACILITIES

- ① RANDOM button
- ② BEST button
- ③ HI-LITE button
- ④ Hood
The rack ⑨ comes forward when the hood is opened.
- ⑤ DISC select buttons (+, -)
- ⑥ PLAY/PAUSE button (▶/||)
- ⑦ Stop button (■)
- ⑧ Fast foward, fast reverse buttons (◀◀/▶▶, ▶▶/▶▶)
- ⑨ Rack

SPECIFICATIONS

Type Compact disc digital audio system
 Wow and Flutter Limit of measurement
 (±0.001 % W.PEAK) or less (EIAJ)

Service Manual

 **PIONEER**
The Art of Entertainment

ORDER NO.
RRV 1486

FILE-TYPE CD PLAYER

PD-Q160F

- Refer to the service manual RRV1438 for PD-Q160F/ZVY.

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	PD-Q160F		
ZDL	O	AC power supplied from power transformer's secondary of other system component.	

- This product is a system(s) component.
This product does not function properly when independent; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.
This product's instructions are contained within the instruction manual of the related system component(s).
The manual is packed with those component(s).

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T-FZB FEB. 1996 Printed in Japan

● CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	→	56 × 10 ¹	→	561	.....	RD1/4PU	561J
47kΩ	→	47 × 10 ³	→	473	.....	RD1/4PU	473J
0.5Ω	→	0R5	.....			RN2H	0R5K
1Ω	→	1R0	.....			RS1P	1R0K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	→	562 × 10 ¹	→	5621	RN1/4PC	5621F
--------	---	-----------------------	---	------	-------	---------	-------

PD-Q160F/ZDL and PD-Q160F/ZVY have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		PD-Q160F/ZVY	PD-Q160F/ZDL	
NSP	MOTHER ASSY └ CD ASSY └ FRNT ASSY	AWM7189 AWZ8015 AWZ8023	AWM7190 AWZ8016 AWZ8024	
NSP	Rear Panel GM	ANC7358	ANC7405	
NSP	Caution Label	ARW1030	Not used	
	Center Label	AAX7288	AAX7297	
	CD Case Rack	AMR7066	Not used	
	Packing Case	AHD7277	Not used	

CD ASSY

AWZ8016 and AWZ8015 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		AWZ8015	AWZ8016	
	C514 C8413, C8414	CKSQYB102K50 CCSQCH101J50	Not used Not used	

FRNT ASSY

Although AWZ8024 and AWZ8023 are different in part number, they consist of the same components.